

Curriculum Vitae

ROBERT KEY DISMUKES
 NASA-Ames Research Center
 Moffett Field, CA 94035
 (650) 604-0150

PROFESSIONAL EXPERIENCE

- 1991-present Chief Scientist, Human Factors Research & Technology Division
NASA-Ames Research Center
- 1989-1991 Chief, Aerospace Human Factors Research Division
NASA-Ames Research Center
- 1983-1989 Director of Life Sciences
Air Force Office of Scientific Research
- 1979-1983 Study Director, Committee on Vision
National Academy of Sciences-National Research Council
- 1977-1979 Staff Scientist, Neurosciences Research Program
Massachusetts Institute of Technology
- 1976-1977 National Endowment for the Humanities Fellow
Institute of Society, Ethics, and the Life Sciences, Hastings, New York
- 1975-1976 Visiting Faculty, Department of Pharmacology
Free University Medical Faculty, Amsterdam
- 1973-1975 Staff Fellow, Pharmacodynamics Section
NIAMDD, National Institutes of Health
- 1972-1973 Postdoctoral Fellow, Department of Pharmacology
The Johns Hopkins University School of Medicine
- 1966-1968 1st Lieutenant, U. S. Army

EDUCATION

- | | | | |
|-------|------|-------------------------------|-------------------------|
| B.S. | 1964 | North Georgia College | Physics |
| M.A. | 1966 | Vanderbilt University | Physics |
| Ph.D. | 1971 | Pennsylvania State University | Biophysics/Neuroscience |

RELATED PROFESSIONAL EXPERIENCE

Society for Neuroscience: Social Issues Committee (1977-1982; chair, 1980-1982); Committee on Animal Welfare (1981-1982); Task Force on Government Affairs and Social Issues (vice-chair, 1982-1983).

National Institute for Handicapped Research: Interagency Committee on Low Vision (1981-1984).

National Research Council: Professional Staff Development Committee (chair, 1982-1983).

Federation of Behavioral, Psychological, and Cognitive Sciences: Forum on Research Management (1984-1989).

FAA Scientific Task Planning Group (1990).

FAA/NASA Technical Advisory Group for Aviation Human Factors (1991)

U.S. Army Reserve (1968-73): Commander, HHC, 313th Transportation Battalion.

FAA pilot ratings: ATP multiengine land: B-737, CE-500. Commercial SE Land, glider. CFI (glider).

PUBLICATIONS

Research reports, technical papers, and books

Dismukes, R.K., Lott, S.H., & Barach, J.P. (1966). Faraday effect measurements with pulsed magnetic fields. **Applied Optics** 5:1246.

Dismukes, R. K. (1971). The biogenic amines and memory. Ph.D dissertation, Biophysics Department, Pennsylvania State Univ.

Dismukes, R.K. & Rake, A.V. (1972). Involvement of biogenic amines in memory formation. **Psychopharmacologia** 23:17.

Dismukes, K. & Daly, J.W. (1974). Norepinephrine-sensitive systems generating cyclic AMP: increased responses in cerebral cortical slices from reserpine-treated rats. **Mol. Pharmacol.** 10:933.

Dismukes, R.K., Kuhar, M.J., & Snyder, S.H. (1974) Brain histamine alterations after hypothalamic isolation. **Brain Research** 78:144.

Dismukes, R.K. & Snyder, S.H. (1974) Dynamics of brain histamine. **In Advances in**

Neurology (McDowell, F. & Barbeau, A., eds.). New York: Raven Press. 5:101

Dismukes, R.K. & Snyder, S.H. (1974). Histamine turnover in rat brain. **Brain Research** 78:467.

Dismukes, R.K. & Daly, J.W. (1975). Accumulation of adenosine 3'-5' monophosphate in rat brain slices: effects of prostaglandins. **Life Sciences** 17:199.

Dismukes, R.K. & Daly, J.W. (1975). Altered responsiveness of adenosine 3'-5' monophosphate generating systems in brain slices from adult rats after neonatal treatment with 6-hydroxydopamine. **Experimental Neurology** 49:150.

Dismukes, R.K., Gosh, P., & Daly, J.W. (1975). Cyclic adenosine 3'-5' monophosphate generating systems in guinea pig brain slices: lack of alterations following chronic depletion of norepinephrine and serotonin. **Experimental Neurology** 52:206.

Dismukes, R.K., Gosh, P., & Daly, J.W. (1975). Enhanced responsiveness of adenosine 3'-5' monophosphate generating systems to putative neurotransmitters in rat brain slices following medial forebrain lesioning. **Experimental Neurology** 49:725.

Dismukes, R. K. & Daly, J. W. (1976). Adaptive responses of brain cyclic AMP generating systems to altered synaptic input. **J. Cyclic Nucleotide Research** 2:321.

Dismukes, R. K. & Daly, J. W. (1976). Altered brain cyclic AMP responses in rats reared in enriched or impoverished environments. **Experientia** 32:730.

Dismukes, R. K. & Mulder, A. H. (1976). Cyclic AMP and alpha-receptor mediated modulation of noradrenaline release from rat brain slices. **Eur. J. Pharmacology** 39:383.

Dismukes, R. K. & Mulder, A. H. (1976). Effects of neuroleptics on release of tritiated dopamine from striatal slices. **N.S. Arch. Pharmacol.** 297:23.

Dismukes, R. K., Rogers, M., & Daly, J. W. (1976). Cyclic adenosine 3'-5' monophosphate formation in guinea pig brain slices: effects of H1 and H2 histamine agonists. **J. Neurochemistry** 26:785.

Rogers, M., Dismukes, R.K., & Daly, J.W. (1976). Norepinephrine-sensitive cyclic AMP-generating systems: increased responses in guinea pig brain slices: effects of H1 and H2 antagonists. **J. Neurochemistry** 25:531.

Stalvey, L., Daly, J. W., & Dismukes, R. K. (1976). Behavioral activity and accumulation of cyclic AMP in brain slices of inbred strains of mice. **Life Sciences** 19:1845.

Dismukes, R. K. van der Boer, A., & Mulder, A. H. (1977). On the mechanism of alpha-receptor modulation of norepinephrine release from brain slices. **N.S. Arch. Pharmacol.** 299:115.

- Mulder, A. H., de Langen, C., Wemer, J., & Dismukes, K. (1977). In vitro studies on presynaptic alpha-receptor mediated modulation of transmitter release from central noradrenergic neurons. In **Catecholamines: Basic and Clinical Frontiers** (E. Usdin, J. J. Konig, and J. Barchas, Eds.). New York: Pergamon Press. 1:259.
- Dismukes, R. K. (1978). Constraints on inferring neurochemical involvement in behavior. In **Peptides and Behavior: A Critical Examination of Approach. Neurosci. Res. Prog. Bull.** Cambridge: MIT Press. 16(4):580.
- Dismukes, R. K. & Liebeskind, J. L. (1978). An overview: How much can psychopharmacology tell us about the roles of neuropeptides in behavior. In **Peptides and Behavior: A Critical Examination of Approach. Neurosci. Res. Prog. Bull.** Cambridge: MIT Press 16(4):493.
- Dismukes, R. K. (1978). What mind-brain problem? **Behavioral and Brain Sciences** 1:351.
- Dismukes, R. K. (1979). New concepts of molecular communication among neurons. **Behavioral and Brain Sciences** 2:409.
- Daly, J. W., Hoffer, B. J., & Dismukes, R. K. (1980). **Regulation of Neuronal Sensitivity. Neurosci. Res. Bull.** Cambridge: MIT Press. 18(3)325.
- Mulder, A. H., Dismukes, R. K., de Langen, C. D. J., Wemer, J., & Frankhuyzen, A. L. (1980). Studies on presynaptic alpha-adrenoceptors in the rat brain. **Progress in Pharmacology** (P. A. van Zweiten, ed.).
- Richards, W. & Dismukes, K. (eds.) (1981). **Vision Research for Flight Simulation.** Report of a National Research Council Panel. Washington: National Academy Press.
- Brown, B. S., Dismukes, R. K., & Rinalducci, E. J. (1982). Video Display Terminals and the Vision of Workers: Summary and Overview Of a Symposium. **Behavior and Information Technology** 1(2):121.
- Sekuler, R., Kline, D., & Dismukes, R. K. (eds.) (1982). **Aging and Human Visual Function** New York: Alan R. Liss.
- Sekuler, R., Kline, D., & Dismukes, K. (Eds.) (1982). Aging and Visual Function of Military Pilots. Report of a National Research Council Working Group. **Aviation, Space, and Environmental Medicine** 53(8):747.
- Dismukes, K. (1992). Borrowing ideas for soaring safety. **Soaring** 56 (7):39.
- Orasanu, J., Dismukes, R. K., & Fischer, U. (1993). Decision errors in the cockpit. **Proceedings of the Human Factors and Ergonomics Society.** (pp363-7) Santa

Monica, CA: Human Factors Soc.

Dismukes, K. (1994). Aviation human factors research in U.S. Universities: Potential contribution to National Needs. **NASA Technical Memorandum 108814**. Also in (1994): **International Journal of Aviation Psychology** 4(4): 315.

Dismukes, R. K., McDonnell, L. K., Jobe, K. K., & Gregorich, S. E. (1995). A survey and analysis of LOFT debriefing techniques. **Proceedings of the Eighth International Symposium on Aviation Psychology**. (pp 651-7). Columbus, OH: Ohio State University.

McDonnell, L. & Dismukes, K. (1996). A New tool for assessing LOFT debriefings. **The CRM Advocate** 96 (2) 15.

Baker, D. P. & Dismukes, R. K. (1997). Tools for investigating rater reliability and accuracy. In R. Jensen (Ed.), **Proceedings of the 9th International Symposium on Aviation Psychology** (pp. 452-458). Columbus, OH: Ohio State University.

Dismukes, R. K., Jobe, K. K., & McDonnell, L. K. (1997). LOFT debriefings: an analysis of instructor techniques and crew participation. **NASA Technical Memorandum 110442**.

McDonnell, L. K., Jobe, K. K. & Dismukes, R. K. (1997). Facilitating LOS debriefings: a training manual. **NASA Technical Memorandum 112192**.

Dismukes, K., Young, G., & Sumwalt, R. (1998). Cockpit Interruptions and Distractions: Effective Management Requires a Careful Balancing Act. **ASRS Directline** 10, 3.

Baker, D.P., Mulqueen, C., & Dismukes, R.K. (1999). Training pilot instructors to assess CRM: The utility of frame-of-reference (FOR) training. **Proc. Int Aviation Training Symposium** (291-300).

Dismukes, R.K. (1999). Discussion: Issues in Evaluating Crew Performance in Line Oriented Evaluation. **Proc 10th Int Symp. on Aviation Psychology** (pp329-331). Columbus, OH: Ohio State University.

Henry, W.L., Young, G.E., & Dismukes, R.K. (1999). The influence of global positioning system technology on general aviation pilots' perception of risk during in-flight decision making. **Proc 10th Int Symp. On Aviation Psychology** (pp147-151). Columbus, OH: Ohio State University.

McDonnell, L.K., Jobe, K.K., Dismukes, R.K., & Smith, G.M. (1999). The debriefing assessment battery as a facilitation tool. **Proc 10th Int Symp. On Aviation Psychology** (pp1084-1087). Columbus, OH: Ohio State University.

Baker, D.P., Mulqueen, C., & Dismukes, R.K. (1999). Training pilot instructors to

assess CRM: The utility of frame-of-reference (FOR) training. In R. Jensen (Ed.), **Proceedings of the 10th International Symposium on Aviation Psychology** (pp. 291-300). Columbus, OH: Ohio State University.

Dismukes, R.K. & Smith, G.M. (Eds) (2000). **Facilitation and Debriefing in Aviation Training and Operations** Aldershot: Ashgate.

Dismukes, R. K., McDonnell, L. K., and Jobe, K. K. (2000). Facilitating LOFT Debriefings: Instructor Techniques and Crew Participation. **Int. J. Aviation Psychology** 10(1), 35-58.

Baker, D.P., Mjlqueen, C., & Dismukes, R.K. (2001). Applying Resource Management in Organizations: A Guide for Training Professionals. In E. Salas, C. Bowers, & E. Edens (Eds), **Improving Teamwork in Organizations: Applications of Resource Management Training** (pp132-146). Mahwah, NJ: Lawrence Erlbaum.

Dismukes, R. K., McDonnell, L. K., Jobe, K. K., & Smith, G. M. (2001). What is facilitation and why use it? In R. K. Dismukes & G. M. Smith (Eds.) **Facilitation and debriefing in aviation training and operations**. Aldershot, UK: Ashgate.

Dismukes, R. K. (2001). Rethinking crew error: Overview of a panel discussion. In R. Jensen (Ed.), **Proceedings of the 11th International Symposium on Aviation Psychology**. Columbus, OH: Ohio State University.

Dismukes, R.K., Loukopoulos, L.D., & Jobe, K. (2001). The challenges of managing concurrent and deferred tasks. **Proc. 11th Int. Symp. On Aviation Psychology**. Columbus, OH: Ohio State University.

Loukopoulos, L.D., Dismukes, R.K., & Barshi, I. (2001). Cockpit interruptions and distractions: a line observation study. **Proc. 11th Int. Symp. On Aviation Psychology**. Columbus, OH: Ohio State University.

Stone, M., Dismukes, R.K., & Remington, R. (2001). Prospective Memory in Dynamic Environments: Effects of Load, Delay, and Phonological Rehearsal. **Memory** 9(3) 165-176.

Baker, D.P., & Dismukes, R.K. (2002). Special Issue on Training Instructors to Evaluate Aircrew Performance. **Int. J. Aviation Psychology** 12(3), 203-204.

Baker, D.P., & Dismukes, R. K. (2002). A Framework for Understanding Crew Performance Assessment Issues. **Int. J. Aviation Psychology** 12(3), 205-222.

Mulqueen, C. Baker, D.P., & Dismukes, R. K. (2002). Pilot Instructor Rater Training: The Utility of the Multifaceted IRT Model. **Int. J. Aviation Psychology** 12(3), 287-304.

Sumwalt, R. L. III, Thomas, R. J., & Dismukes, R. K. (2002). Enhancing flight-crew monitoring skills can increase flight safety. In **Proceedings of the 55th International Air Safety Seminar**, Flight Safety Foundation (pp. 175-206), Dublin, Ireland, November 4 - 7.

Baker, D. P. & Dismukes, R. K. (2003). A gold standards approach to training instructors to evaluate crew performance. (**NASA Technical Memorandum 212809**). Moffett Field, CA: NASA Ames Research Center.

Burian, B. K., Dismukes, R. K., & Barshi, I. (2003). The Emergency and Abnormal Situations Project. In T. McCarthy (Ed.), **Proceedings of the International Society of Air Safety Investigators Conference**. Washington, D.C., 26-28 August, 2003.

Colvin, K. W., Dodhia, R. M., Belcher, S. A., & Dismukes, R. K. (2003). Scanning for Visual Traffic: An Eye Tracking Study. In **Proceedings of the 12th International Symposium on Aviation Psychology** (pp. 255-260). Dayton, OH: The Wright State University.

Einstein, G.O., McDaniel, M.A., Williford, C.L., Pagan, J.L., & Dismukes, R.K. (2003). Forgetting of intentions in demanding situations is rapid. **Journal of Experimental Psychology Applied**, 9(3), 147-162.

Gawron, V. J., Berman, B. A., Dismukes, R. K., & Peer, J.H. (2003). New airline pilots may not receive sufficient training to cope with airplane upsets. Flight Safety Foundation's **Flight Safety Digest**, July-August 2003, pp. 19-32.

Loukopoulos, L.D., Dismukes, R. K., & Barshi, I. (2003). Concurrent task demands in the cockpit: Challenges and vulnerabilites in routine flight operations. In **Proceedings of the 12th International Symposium on Aviation Psychology** (pp. 737-742). Dayton, OH: The Wright State University.

Nowinski, J. L., Holbrook, J. B., & Dismukes, R. K. (2003). Human memory and cockpit operations: An ASRS study. In **Proceedings of the 12th International Symposium on Aviation Psychology** (pp. 888-893). Dayton, OH: The Wright State University.

Sumwalt, R. L. III, Thomas, R. J., & Dismukes, R. K. (2003, August 25). The new last line of defense against aviation accidents. **Aviation Week & Space Technology**, 159(8), 66.

Burian, B. K., Barshi, I., & Dismukes, K. (2005). The challenge of emergency and abnormal situations. **NASA Technical Memorandum 2005-213462**. Moffett Field, CA: NASA Ames Research Center.

Nowinski, J. L., & Dismukes, R. K. (2005). Effects of ongoing task context and target typicality on prospective memory performance: The importance of associative cueing. **Memory**, in press.

Policy, Op/Ed and Public Affairs Articles

Dismukes, R. K. (1977). Recombinant DNA: a proposal for regulation. **Hastings Center Report** 7:25. Reprinted in **Bioethics: Selected Readings**. T. A. Shannon (1980) (revised). New York: Paulist Press.

Dismukes, R. K. (1979). What should society expect from scientists? **Bull. of Atomic Scientists** 35(9):19. Reprinted in **Current** (1980) 220:23.

Dismukes, R. K. (1980). The Supreme Court and patenting life: life is patently not human-made. **Hastings Center Report** 10(5):11.

Dismukes, K. (12 July 1983). With video display terminals the distress is human. **Los Angeles Times** and other newspapers.

Dismukes, K. (1988). Why scientists should start playing the political game. **The Scientist** 2 (15):11.

Dismukes, K. & Jonides, J. (1989). Project 2061: A place to start educating the public. **The Scientist** 3 (15): 11.

Dismukes, K. & Tullo, F. (2000, July 17). Aerospace Forum: Rethinking crew error. **Aviation Week & Space Technology** p63.

Sumwalt, R. L. III, Thomas, R. J., & Dismukes, R. K. (2003, August 25). The new last line of defense against aviation accidents. **Aviation Week & Space Technology**, 159(8) 66.

News and Views Articles

Opiate receptor binding (1973) **Nature** 242:228. A common receptor for hallucinogens? (1973) **Nature** 242:367. Receptors for neuro-transmitters (1973) **Nature** 252:443. Narcotic action at the molecular level (1974) **Nature** 247:83. Two-faced neurons (1977) **Nature** 269:104. New look at the aminergic nervous system (1977) **Nature** 269:557. Central core regulation: monoaminergic systems (1977) **Neuroscience Newsletter** 8:5. Mechanisms of regulation of neuronal sensitivity (1978) **Neuroscience Newsletter** 9:5. Two NRP one-day conferences (1979) **Neuroscience Newsletter** 10(1):4. Should the Society for Neuroscience act on behalf of repressed scientists? (1981) **Neuroscience Newsletter** 12(4):2. Animal welfare: public issues and scientists' concerns (with L. Irwin) (1981) **Neuroscience Newsletter** 12(6):2.

Symposia Organized or Chaired

Communication and citation patterns in neuroscience, Society for Neuroscience 1978 annual meeting (Anaheim). Regulation of neuronal sensitivity, Neurosciences Research Program Conference, 14-16 May 1978 (Boston). The roles of neuropeptides in behavior, Neurosciences Research Program, 5-6 October 1978 (Boston). Aging and human visual function, NAS-NRC Committee on Vision symposium, 31 March-1 April 1980 (Washington). Low vision: strategies for developing basic research/ clinical science collaboration, workshop sponsored by a group of federal agencies and professional organizations, 11 January 1981 (Bethesda, MD). Video display terminals and vision of workers, NAS-NRC Panel on Video Viewing symposium, 20-21 August 1981 (Washington). Use of animals in neuroscience research, Society for Neuroscience 1982 annual meeting (Minneapolis). Human Performance in the Modern Cockpit, Aerospace Medical Association 1992 annual meeting (Miami).

STUDY DIRECTOR FOR NAS-NRC STUDIES

The Multiple Position Letter Sorting Machine: An Evaluation of Visual, Auditory, and Human Factor Problems. (1979). Washington: National Academy of Sciences.

Recommended Standard Procedures for the Clinical Measurement and Specification of visual acuity (1980). **Advances in Ophthalmology** 41:103

Effects of Microwave Radiation on the lens of the Eye (1981). Washington: National Academy of Sciences.

Procedures for Testing Color Vision (1981). Washington: National Academy of Sciences.

Vision Research for Flight Simulation (1981). Washington: National Academy of Sciences.

Aging and Visual Function of Military Pilots (1982). Sekuler, R., Kline, D., and Dismukes, K., eds. **Aviation, Space & Environmental Medicine** 53(8): 747.

Video Viewing and the Vision of Workers (1983). Washington: National Academy of Sciences.

Some Research Needs in Aging and Visual Perception (1983). Sekuler, R., Kline, D., Dismukes, K., & Adams, A. **Vision Research** 23 (3): 213.

BOOK REVIEWS

M. Gazzaniga's **The Social Brain** (1988). Dismukes, K. **Technology Review** 91(2):77.

J. Ziman's **Knowing Everything about Nothing** (1988). Dismukes, K. **The Scientist** 2(2):19.